THE VETERINARY RECORD

FOUNDED BY WILLIAM HUNTING, F.R.C.V.S., 1888

No. 5. JANUARY 29, 1949 Vol. 61.

The Improvement of the Native Cattle of Kenya*

By

D. E. FAULKNER, B.V.SC., M.R.C.V.S., DIP. AGRIC.

Department of Veterinary Services, Kabete, Kenya

Introduction

As in other parts of Africa there is considerable controversy in this colony over the best means of improving the livestock of the African. In many parts of Africa it has been customary to dismiss the Native indigenous cattle as "scrub" cattle and the potentialities of the Native types have failed to be recognised.

In Kenya although breeding and selective work utilising only the indigenous Short Horned Zebu and the near related Indian Zebu has been carried out at various centres during the past 15 years or so, the advantages of improving the Native stock by this means and the dangers likely to arise when the exotic breeds are introduced into the Native Areas do not appear in general to have been properly appreciated.

It is difficult enough to implement Government policy in the Native Areas when the officers of all departments concerned clearly understand the issues involved and are in agreement as to the ways in which their difficulties can be overcome, but it is almost impossible to achieve effective results when officers of the various departments, or even officers of the same department, disagree on matters of fundamental policy. An instance of such difference in viewpoint is to be found in the subject now under review, namely, the method or methods which Government can best employ in improving the Native livestock.

Technical Government policy can hardly be sound unless it is capable of standing up to close scientific scrutiny and it is hoped that this paper may provide a satisfactory explanation of the policy of livestock improvement adopted, not only in this colony, but in other tropical countries too, and may assist officers of all departments interested, in obtaining a clear appreciation of the issues involved.

Administratively the problem is a difficult one because in the background of any policy of selective breeding of the indigenous stock there must always be the suspicion that racial discrimination is once more at work. It must therefore be said at once that in principle it must be recognised that where an individual African is prepared and able to give to his stock, in those areas where under good management the exotic breeds have been shown to thrive, that standard of feeding, husbandry and management attained by a good European farmer, there can be little objection to that African owning high producing grade cattle.

Unfortunately although most Native Areas possess a small number of progressive Africans prepared and willing to maintain the high standards of animal husbandry, breeding and feeding necessary for the proper utilisation of the exotic breeds, under the systems of land tenure at present applying in the Native Areas and with the lack of fencing common to all those areas, it is extremely difficult to isolate them from their neighbours who, as yet indifferent to the quality of their animals, are unprepared themselves to maintain the high standards required, with the result that the qualities which their own cattle do possess, namely, the resistance to disease and poor management and their ability to thrive under extreme adverse conditions of environment, are largely dissipated by the introduction of blood originally intended for a much more favourable environment. It is of course possible that some Native Areas possess an environment so favourable and a people (as distinct from individuals) so far advanced as to justify the immediate wholesale grading up of their indigenous stock by an improved exotic breed, because some years must elapse before Native stock possessing the desirable productive capacity can be made available in sufficient numbers.

This is not a problem which can be considered dogmatically but each area must be carefully considered in relation to its neighbours and from the point of view of altitude, disease, climate, availability of fodder supplies, the uses for which the cattle are required and the general advancement of the people dwelling therein.

Methods of Improvement

The methods by which improvement of the indigenous cattle might be effected are as follows:—

(i) By selective breeding of the local Native type.

(ii) By the use of improved Native types such as the Boran, the Indian Zebu or the Afrikander (as being the only improved indigenous African breed).

(iii) By the continued grading up of the indigenous stock with bulls of the exotic breeds.

(iv) The grading up of the indigenous stock with bulls of the exotic breeds until such time as retrogressive changes manifest themselves when a backcross to the indigenous type is made. This is then followed by top-crossing with bulls of the original imported breed until another backcross becomes necessary.

(v) Grading up the Native stock to that grade which gives the best results and then using grade bulls.

For obvious reasons the last two methods of improvement could hardly be applied in the Native Areas and need not concern us here.

In Kenya the policy followed at the veterinary breeding centres has been one of selective breeding of the local type as at Nandi and the use of the Indian Zebu and the Boran at other centres. The Kenya Development Committee in its report stated that: "As regards native dairy cattle, we recommend the continuation and extension of the present system under which homozygous families are built up in Government herds for eventual distribution to native farmers." In a limited number of Native Areas grading up with bulls of one or more of the exotic breeds has also taken place. A particular instance of this is to be found in the vicinity of Nyeri, where several Kikuyu owning their own farms (situated at over 6,000 ft.) which they have fenced and paddocked, have been grading up their stock for several years in order to obtain the higher yields with which to supply Nyeri with its milk requirements. A comparison of the grade stock well managed and fed on the individual Kikuyu farms and the grade stock run in the unfenced Native Areas close by affords an interesting lesson in the value of good feeding and management of cattle even when under Native ownership. As might be anticipated, however, almost every recognisable European breed is represented in these herds.

Before discussing the reasons for the adoption of a policy of selective breeding of the indigenous stock in Kenya and other tropical countries also, certain fundamental points must be emphasised.

Firstly, while the many breeds of livestock evolved in a small country such as Great Britain are widely known and have been taken all over the world, it is important to remember that each breed was originally bred in a certain environment and for a specific purpose or purposes. In order that these breeds of livestock should retain the qualities for which they were bred it is necessary in transferring them to other countries to provide them with an environment as closely similar to that in which they originated as possible, otherwise in adapting itself to the new environment the breed may lose many of the characteristics which distinguish it in its native land.

Secondly, while the old saying, "half the pedigree goes in at the mouth," can be over-emphasised, yet it is necessary to stress the great importance of better feeding and management without which improved breeding is rendered valueless. This is especially true in Africa where conditions for livestock are generally extremely adverse. In Kenya, for example, it is not perhaps generally appreciated that while the work at the breeding centres has now been in progress for a not inconsiderable period, the application of this work to the Native Areas is almost negligible and must be so until compulsory dipping becomes universal throughout all those areas where East Coast fever and the other tick-borne diseases are endemic.

*Presented to the meeting held in January, 1948, at the Kabete Veterinary Research Laboratory, Kenya.

Thirdly, in considering a breeding policy for the Native Areas it is necessary to bear in mind the principal features of the livestock industry of this colony, some of which are as follows:—

(i) The presence in the colony of a Native cattle population of some four million head still predominantly unmixed with exotic blood and which may be regarded as being well adapted to the prevailing environmental conditions of climate and nutrition (and to a certain extent also to prevailing diseases and husbandry practices).

(ii) The poor methods of husbandry at present employed in the Native Areas.

(iii) The presence in the colony of a great range of diseases common to both temperate and tropical countries.

(iv) The necessity for increasing the amount of milk available to the Native population, while not forgetting the need for draft and beef qualities.

(v) That for many years to come the major portion of the stock in Kenya will have to be raised under ranching conditions.

(vi) That in most areas periods of drought and shortage of food occurs.

(vii) That the agricultural development of the Native Areas of the colony is by no means high and that where standards are highest the human population is greatest, requiring all the cereals and other foodstuffs available for its own subsistence, thus making it likely that in such areas there would be a shortage of supplementary food for cattle.

(viii) That in every Native Area there is need for the training of the Native farmer in proper systems of management, feeding and breeding before he could safely be entrusted with grade or exotic stock.

(ix) That as East Coast fever and other diseases are rife it is imperative at present to retain the tolerance to disease and local conditions which the indigenous stock possess.

(x) That under good management and with adequate feeding the potentialities of the local indigenous stock at the breeding centres and on certain European farms have been demonstrated.

(xi) That the indigenous stock are at present largely unadulterated and that where crossing has been carried out in the past it has been successful only under good management.

As has been said, the policy adopted at the Government breeding centres in this colony has been one of the selection of the indigenous stock and the utilisation of improved Native types such as the Boran and the Indian Zebu. The soundness of this policy is well borne out by the experience of most other tropical countries, where the selective breeding of the indigenous stock has been advocated by various authorities as a policy in preference to cross-breeding with the exotic breeds.

Hammond, of Cambridge, in his report on Cattle Breeding in Jamaica and Trinidad, has suggested that several factors may account for the degeneration commonly observed in the Native bred European animals. He suggests among others the sublethal effects of tick-borne diseases; the long hairy coat and lack of skin pigment of European breeds; the forced recourse to inbreeding, the result of a lack of sufficient breeding animals; the scarcity of protein-rich feeds, especially roughages, and the possible effect of climatic factors on the animal itself. Dr. Hammond in the same report goes on to say, "Apart from the time it would take, I can find no evidence that mere selection (combined with better breeding) of the local stock would not produce equally good results. . . . There can be little doubt that European stock, even when pure bred, gradually lose their type under these (tropical) conditions and require continual importations to maintain their form and constitution."

Sir Frank Stockdale, writing of conditions in Nigeria, says: "The introduction of strains from outside will only add to the complications which already exist and produce an even more heterogeneous collection of animals than at present exist. . . . In my view, a policy of rigid selection from the local cattle would be more calculated to produce results of lasting value than could be achieved by the introduction of the blood of strains of cattle from outside."

J. Edwards in his paper, "Breeding for Milk Production in the Tropics," has had this to say: "There are certain features common to the few experiments upon the breeding of dairy cattle for tropical and sub-tropical regions already on record. The introduction of European breeds into the tropics with a view to their final acclimatisation to their new environment is a questionable procedure. The adaptability of a breed to its surroundings may be measured by its capacity to be self-sufficient as a breeding unit, capable of existing and multiplying without recourse to repeated importations of new blood. When judged by this criterion, the experience of European breeds in the tropics may be said to be one of failure. The first imported animals may be satisfactory, but the subsequent generations bred in the tropics show progressive degeneration brought about by debility, ravages of disease, the effects of high temperatures, exposure to strong sun and an inability to maintain the constitution necessary for their inherent high milk capacities."

At Armoedsvlakte in South Africa, where long-range experiments were commenced in 1925 to determine the effects of correcting a phosphorus deficiency in the district, Bisschop has stated: "The results have proved that although the phosphorus deficiency apparently is the only limiting factor to normal function in indigenous grade cattle, at Armoedsvlakte it is but one of the environmental factors affecting grades of the exogenous breeds. Although no conclusions as to the factors responsible for the deterioration of the exogenous stock have yet been published it is likely that extremely valuable information will be obtained on the degeneration of European cattle under some of the severest conditions of the Union."

It has been suggested by several workers that there are fundamental differences in the digestive and metabolic processes of European and Native tropical cattle and very definite evidence has been accumulated both by Rhoad in Brazil and Bonsma in South Africa of the influence of atmospheric temperature and humidity on the metabolic rate as between the two types. Rhoad sums up the matter very concisely when he says: "The general conclusion reached in all parts of the tropical world, however, is that the permanent solution of the farm dairy problem is not devising new ways of managing the old-established breeds but rather the development of new breeds using the Native type as foundation stock."

India, with its rigorous climatic conditions, its shortage of food and an enormous cattle population, offers a valuable field from which much may be learnt. In writing of livestock improvement in that country Colonel Sir Arthur Olver, Imperial Animal Husbandry expert to the Indian Government, says: "For past years it has been demonstrated by organisations such as Military Dairy Farms, that crossbred cattle from Indian cows and sires of European blood, in spite of the heavy capital and recurring expenditure involved, were generally, under their special condition of management, more profitable dairy animals than ordinary Indian cows. On the other hand there is ample evidence that where control is inadequate or inexpert the pursuit of such a policy leads to immediate loss of type, rapid degeneration and high susceptibility to disease." And again: "It is far sounder, therefore, to effect systematic improvement by means of selective breeding and management of indigenous stock than to attempt to grade them up by the importation of stock of European origin."

Dr. Norman Wright, Director of the Hannah Dairy Research Institute of Scotland, in his report on the Cattle and Dairy Industries of India published in 1937, expresses similar views. He writes: "Owing to the relatively low milk yields of indigenous Indian breeds, it is, perhaps, natural that breeders have tended to rely on cross-breeding with sires of high-yielding European breeds to raise the productivity of local stock. This policy has been widely adopted by the Military Dairy Farms and also certain agricultural college herds. The immediate results are certainly striking. The first cross (half-bred) gives an average double the yield of its indigenous dam, while it also breeds more regularly. With further crossing the results have not, however, been so successful. Mating half-bred to half-bred is of very questionable value; even if a fixed type could be ultimately obtained (which is doubtful) the amount of 'culling' of unsatisfactory animals would make the method extremely expensive. Backcrossing improves the constitution but reduces the milk yield. Forward crossing, on the other hand, while maintaining milk yield is liable to result in a deterioration of physique and in high mortality, particularly among calves. This latter difficulty has to a great extent been overcome by improved technique in calf rearing. Deterioration in the constitution of adult stock appears to be due not so much to the cross-breeding as to the effect of high yield under the rigorous climatic conditions of India. Thus it has been shown that there are indications of increased susceptibility to disease and loss of constitution even among Indian dairy cattle when their milk performances improve. The striking and immediate effect of the introduction of European blood on milk yield is clearly shown.

"It must, however, be emphasised that these results have been obtained in herds in which there have been exceptional facilities for the control of breeding. At other centres where cross-breeding has been practised the results have not been so satisfactory. Even in some college herds the deleterious effect of badly controlled cross-breeding is apparent from a superficial inspection of the stock. Moreover at Military Dairy Farms and in agricultural college herds the animals receive adequate and

well-balanced rations. In this connection I would emphasise a point which has been made in a recent publication, namely, that while European cattle have been bred to carry those characters which assist the effective use of the largest possible quantity of food, Indian cattle have been developed to make the most efficient use of the smallest quantity of food. It is not surprising, therefore, that in the hands of the 'gowalas' and similar uneducated owners of milking stock the results of cross-breeding have frequently been disastrous. Type is entirely absent, the animals may or may not have good yields of milk, and there is a noticeable deterioration in physique. Such results are inseparable from uncontrolled methods of cross-breeding combined with indiscriminate feeding. It is for this reason that I am convinced that, however valuable cross-breeding may be in herds which are under expert control, the general adoption of a policy of cross-breeding to improve the yields of country stock would be fatal to the development of sound dairying in India. . . ."

The results achieved in India by the careful selection of indigenous strains of cattle have been remarkable and will be referred to further on in this paper.

In regard to Ceylon (the wet tropics), Norman Wright in his "Report on the Development of Cattle Breeding and Milk Production in Ceylon," writes: "It has already been noted that the indigenous Sinhala cattle may be expected to possess like the Zebu stock a heat regulatory mechanism which enables them to tolerate the severe rigours of the tropical climate; on account of their small size and efficient digestive mechanism they are capable of subsisting on the sparse and fibrous nutrients supplied in the local fodder; they have a marked tolerance in respect of the enzootic diseases of the island; and they furnish the Ceylon cultivator with a type of draught animal to which he is accustomed and which suits his agricultural and transport requirements. It is not therefore surprising to find that in practically all official reports on cattle breeding in Ceylon improvement in milk yield by the pure-breeding of the indigenous Sinhala cattle has been recommended as the soundest long range objective." Dr. Wright then concludes with the recommendation that: "from analogy with experience in India it seems probable that selective breeding of the indigenous Sinhala cattle would provide the most satisfactory basis for cattle improvement."

In Swaziland, as a result of a visit to that territory in 1943, Bisschop of Onderstepoort advised very definitely against the use of exotic breeds in the Native Areas with their present system of breeding and animal husbandry. He states: "The introduction of bulls of European breeds into the Native owned herds cannot be recommended, in fact, I must warn you against such a policy." J. C. Bonsma, Research Officer, and J. van Rensburg, Animal Husbandry Extension Officer, in the Union Department of Agriculture also, after their visit to Swaziland in 1943, advised against the use of exotic breeds because, as it was, "the gross mismanagement of cattle on the part of the Native is such as to render the results likely to accrue from an improved breeding policy almost useless." C. A. Murray, Chief Animal Husbandry Officer, Southern Rhodesia, in his report on a visit to Swaziland made in 1935, writes: "In spite of the above (the low standards of management and husbandry found in the Native herds) the Native cattle offer golden opportunities for improvement. There is no doubt that under careful direction they can, in ten or 15 years, be improved beyond recognition and made a most valuable asset to the owners and the Territory."

In Bechuanaland Protectorate, Bisschop after a visit to that territory in December, 1946, made the following recommendation: "In terms of the existing background of a very adverse environment it is obvious that the use of exotic breeds is definitely contra-indicated. Two alternatives remain (i) the use of Bechuana bulls, (ii) the use of Afrikander bulls.

As has already been mentioned, the results achieved in India by the careful selection of indigenous strains have been remarkable. Wright in his report includes a table showing the improvement effected in four prominent Sahiwal herds. He says: "The improvement has been extremely rapid, the average milk yield in two of the herds having been more than trebled in 20 years." Table 30 shows the distribution of milk yields of three other pure bred Sahiwal herds. In comparison it may be noted that the average lactation yield of the Ferozepore herd over the past four years has been roughly 7,000 lb. milk in an average of 340 days. Out of 290 recorded lactations 30 head exceeded 8,000 lb., 16 exceeded 9,000 lb. and six exceeded 10,000 lb. These figures not only show the marked and rapid improvement which can be effected through careful breeding but indicate that the levels of the milk yield finally obtained are comparable with those found for average European stock. Other breeds have not received so much attention as the Sahiwal, but there is evidence to show that these also have great potentialities for milk. The average yields of animals in the Hariana and Tharparker herds which were established by the Imperial Dairy Expert at Karnal in 1923 have increased from under 9 lb. to between 13 and 14 lb. The average lactation yield of animals in these herds is now over 3,500 lb. in 300 days. Scindi cattle have not been so carefully studied, but there are indications that this breed also has high milk potentialities. At the Hosur Cattle Farm the average lactation yield of the Scindi cows is 3,250 lb. milk in just over 300 days. At the Imperial Dairy Institute they have shown a 20 per cent. increase in yield in three years."

In the Sudan, too, some interesting results have been achieved by J. W. Hewison who has described the formation of a herd of Native cattle at Shendi, near Khartoum, for the purpose of producing butter in order to supplement importations from Kenya, since the usual source of supply, namely, New Zealand, had been cut off by the war. The cattle selected for the foundation of the herd are typical of the cattle of the Northern Sudan and it is thought that "in all probability they are the product of interbreeding between the Asiatic Shorthorn or Brachyceros cattle which are believed to have arrived in the Nile Valley at the end of the Egyptian neolithic era and the lateral horned Zebu cattle which accompanied the immigration into North Africa of Asiatic semitic tribes. . . . The original milk production standards set for qualification for retention in the herd are yields of 3,500 lb. for cows and 2,500 lb. for heifers in lactations not exceeding 270 days. . . . The adoption of this standard resulted in the rejection of 25 cows (from a herd of about 100 cows) in 1944 and a further ten in 1945. To fill these vacancies and to maintain a fair proportion of young cattle, 17 in-calf heifers were bought in the Butona in 1944 and 20 more in 1945.

"The milk yields from our foundation stock in the first two years of operation have exceeded our most optimistic hopes and encourage us to think that by selection alone it will be possible to reach a 4,000 lb. per lactation standard within a very few years. By the process of rejecting the calves of the worst 37½ per cent. of our cows and by the use of proven sires there should be little difficulty in grading up the herd to an average of 5,000 lb. per year within a few generations. Once that stage is reached yields will compare very favourably with commercial European herds when the high butterfat content of the milk is taken into consideration."

In Australia (where in the northern territories Zebu stock imported from the southern States of America are being used to produce a fixed breed similar to the Santa Gertrudis of the King Ranch in America) and in the Gold Coast, Nigeria and Southern Rhodesia a considerable amount of work has also been done with Native cattle, while in this colony the results achieved at the veterinary breeding centres and on certain European farms are perhaps familiar to those who read this paper and show beyond any doubt the immense potential value of our local indigenous stock. At the Baraton Veterinary Breeding Centre in this colony, for example, the average production per lactation of the Nandi Native cows has now reached 250 gallons and all cows unable to reach 225 gallons are regularly culled from the herd. On at least one European-owned ranch, too, excellent results are now being obtained from a policy of selection of the indigenous type for beef purposes. Uniform consignments of Native steers averaging out between 700 and 800 lb. dead weight are regularly received at the local abattoir from herds belonging to Mr. G. de P. Colville. Native cattle of a similar type but coming direct from the Native Areas average out at a little more than 300 lb. dead weight and while no doubt selective breeding over several years is now having its effect, the remarkable difference in slaughter weights must be attributed mainly to the better feeding and management maintained on the European-owned farm.

GENERAL DISCUSSION

In spite of what has so far been said there will no doubt be some who feel that either for political reasons or because the improvement of the Native cattle by selection is comparatively slow, or because possibly in a few limited areas where with favourable conditions of altitude, climate and fertility there do exist groups of Native farmers prepared and able to feed, fence and manage their stock as on a good European farm, exotic breeds should be introduced.

It has also been suggested that because the veterinary breeding centres are not yet in a position to supply Native cows of a high producing capacity in sufficiently large numbers, school farms should be given high yielding grade cattle of 300 to 400 gallons of milk per 300-day lactation capacity, in order to prove to the Native that intensive cattle farming can be made to pay as well as or better than urban occupations. It is considered that a demonstration of this kind will provide the incentive to the Native stock owner to create the conditions necessary for such stock.

Under a proposed betterment scheme in one of the colony's Native Areas it has been stated that the cattle owners are most anxious to possess grade stock; it has in fact become something in the nature of a political issue. The Native cattle owners of the area have agreed to the erection of dipping tanks and the institution of compulsory dipping. This is certainly an excellent beginning but alone, as has been shown, the compulsory dipping of cattle hardly justifies the wholesale introduction of exotic blood into the whole or part of a Native Area. The administrative officers of the district are anxious that in this particular area bulls of the exotic breed should be introduced. It has been suggested that in this way the productivity of the area can quickly be raised and thus the standard of living of its people, and that the area under concentrated supervision may act as a demonstration to the surrounding Native Areas. While, however, the introduction of bulls of the exotic breeds might possibly be justified on the grounds that:—

(i) exotic or grade stock under good management thrive in the particular area,

(ii) the Native population is so far advanced that it is prepared and willing to maintain the high standards of animal husbandry and management required,

(iii) agriculturally the people can produce all the food necessary for themselves and for supplementary feed for their stock,

it is still questionable whether such a policy would be sound for the following reasons:—

(*a*) While on the betterment area by concentrated supervision and attention the Native cattle owner *might* be persuaded to do all that was required, it is by no means certain that he will, and if he does it can hardly be considered a practical demonstration of what can be achieved in the ordinary Native Areas, because economically it is very doubtful whether the concentrated supervisory staff can be provided for the period necessary and in the numbers required to extend this part of the betterment scheme into the surrounding Native Areas.

(*b*) Much the same difficulty applies in regard to veterinary services. With the grading up of the cattle on the betterment area much more detailed veterinary attention will become necessary. Veterinary services are already inadequate in the settled farming areas, where in grade cattle genital and sterility diseases, and other diseases such as mastitis, are increasingly assuming more formidable proportions.

Whether the Native Areas will ever be able to afford the expert advice and assistance which the introduction of high yielding grade stock would imply is doubtful and at least it would be many years before the supervisory staff, required to provide not only the necessary veterinary services, but also to ensure that pastures and grazing were managed properly, that correct rotations and sound agricultural practices were carried out and animal feeding-stuffs were made available, could be reduced to a reasonable economic establishment, by which time the indigenous herds would, it is hoped, be producing all the improved Native stock required.

With regard to the maintenance of grade herds at the school farms, it would obviously not be sound practice to provide a demonstration at the schools which could not be applied within the Native Areas themselves and the stocking of such farms with improved indigenous cattle from the breeding centres as these become available, seems to be the soundest policy to apply.

The knowledge of proper feeding and management of cattle is almost entirely lacking as yet amongst the cattle owning population of this country. It would hardly seem, therefore, a sound policy to employ exotic and improved breeds to teach the Native people the rudiments of proper cattle husbandry. The cattle owners are already well acquainted with their own cattle and it is surely sounder to teach them proper husbandry on these. If their better husbandry methods result in increased yields the Native farmer will then be convinced that it is the better feeding and care that have brought about the change.

If, on the other hand, new, and to the Native largely unknown breeds are introduced, it is likely that he will argue that it is the breed and not the better husbandry methods which is responsible for the increased yields and he will probably be unwilling to support better husbandry methods, because it will mean extra work and expense and a probable reduction in the number of stock in order to provide the necessary extra food for his improved cattle.

Only when the exotic breeds go to pieces under the original farming practices of the Native will he realise that not only the breed but better husbandry practices were the cause of better yields; in so doing, however, he will have learnt the lesson the long and expensive way.

The results achieved at the breeding centres in this country are already such as to demonstrate the valuable qualities of the indigenous cattle, and artificial insemination will very quickly produce all the improved progeny-tested bulls required as conditions in the Native Areas improve so as to permit of the issue of such improved animals.

The Native will learn the lesson of food and care very slowly and the breeding and selection work being carried out at the breeding centres will, it is hoped, more than keep step with the development of the Native himself; it will then be possible to supply the type of cattle he requires from amongst the improved indigenous herds, all the way up the ladder of increased production. As Buchanan Smith has said: "The advantage of this system is that with control of disease and as methods of husbandry improve a class of stock suited to the environment may be evolved."

Cross-breeding with the exotic breeds has been tried elsewhere and encouragement has been given to this practice by the fact that the first cross does give a higher yield than the indigenous dam, without any apparent loss in constitution. It is, however, in the generations subsequent to the half-bred that the difficulties arise. In the tropics, bulls of the exotic breed will not only transmit the desirable character for high milk production, but will also transmit those characters which prevent them from withstanding the adverse conditions of heat, disease, climate and the poor quality nutrients of their abnormal environment. And, while it is possible that in these few Native Areas where exotic breeds have been introduced without a corresponding rise in the standards of animal husbandry and management, there appears at first an increase in the supply of milk, careful investigation will probably show that this has only been obtained at the expense of size, conformation, and constitution and the length of the milking life. Furthermore, it must be remembered that what is required throughout the colony is not the creation of a few specialised dairy herds but the general raising of the level of milk production throughout the colony as a whole, not forgetting the importance of preserving at the same time an animal that can be utilised for draft or beef purposes.

Even were it considered desirable to grade up the indigenous stock over large parts of the Native Areas the problem of supplying large numbers of pure bred bulls would present the Government with a difficult task. If this were not undertaken by Government and the natives were permitted to import into their areas whatever breed and type of animal they could obtain, the heterogeneous herds of cattle which would soon result may well be imagined. As has been indicated, amongst the herds of the progressive Nyeri African farmers this has already occurred. The grading up of the indigenous stock would also have the consequence of producing in the Native Areas a type of animal relatively unsuitable for draught purposes and this might prove a severe disadvantage when the plans for the intensification of mixed farming come to be applied generally throughout the Native Areas.

Possibly the only condition under which there could be no objection of any kind to an African possessing high grade stock and prepared and able to maintain the necessary standards would be in special areas set aside by Government, where the purchase of land is possible and where fencing can be erected. In Southern Rhodesia, for example, several million acres of so-called "Purchase Areas" are set aside for this purpose, but even there it has been found that unless very close supervision is exercised and the farms are worked on a beneficial occupation basis, the standard of farming reverts, in the majority of cases, to standards as low as in the average Native Area.

In Kikuyu where the Native is becoming very money conscious, herds of grade cattle for the supply of milk to the Nyeri market have been maintained, under exceptionally favourable conditions, for some time with a considerable measure of success and undoubtedly the possession of such high yielding stock has done much to promote in their owners (and some of their neighbours, too) an understanding of the need for the higher standards of management, feeding and care. Whether without the incentive of a lucrative cash market close at hand and without the money consciousness peculiar at present to the Kikuyus, the same standards would be maintained, even by these more progressive farmers, is open to question. It is perhaps a matter for regret that high producing Native animals were not available when the need for such animals arose in those Native Areas concerned.

There can be no question, however, that we must be in a position to give to the progressive Native an economic producing animal, especially in those Native Areas such as have been described, which are relatively fertile and free from tick-borne diseases, where a more intensive system of mixed farming must increasingly be adopted, and where the progressive African has been convinced that with a reduced number of cattle dairying

under good management can offer him a means of livelihood as remunerative as any other occupation in which he might engage outside the Native Areas. As Daubney stated in his 1938 annual report, "unless we can give the Native in these areas a productive animal that will show a reasonable profit, the forces of tradition will prove too strong for him; and he will cling to his old custom of keeping cattle mainly for social purposes, endeavouring to provide his food and satisfy his increasing cash income needs solely from the growing of crops. Year by year the acreage devoted to cultivation will expand and the fertility of cultivated lands will decline; the cattle hemmed in on the poorest land, which is all that will be left for grazing, will deteriorate into worthless scrubs, and all the worst factors of the Machakos Reserve will be reproduced in the more fertile areas of Nyanza and Kikuyu. The alternative is the control of tick-borne diseases and the introduction of commercial dairy stock into these agricultural reserves. It is a project that will take years to accomplish but when it is done these lands will be saved for future generations."

Our aim in the Native Areas, then, must be to evolve a Native dairy breed, the cows of which will be capable of producing some 250 to 300 gallons of milk in a lactation of 300 days or less on the minimum of supplementary feeding.

If the high average butterfat production of the Native animal is taken into consideration, as it should be, these figures (which with a 6 per cent. yield would provide 150 to 180 lb. of butterfat) compare not unfavourably with the average butterfat production per cow of grade cattle on European farms, which, as Liversage showed in 1938, varied from 70 lb. to 160 lb. in Nakuru district. That the standard arrived at is not unreasonable and can be achieved without undue difficulty in a relatively short period of time is demonstrated by the results already achieved at Nandi and referred to previously in this paper.

The value of the Native livestock industry both to the Native population and to the economy of this country as a whole is not perhaps always fully appreciated. The turnover of the industry in terms of cold cash must in fact run annually into millions of pounds. To the Native, cattle represent a safe but easily convertible form of wealth and a source of food, draught-power, clothing and fertiliser. Annually, too, they provide him with valuable cash crops in the form of ghee, hides and skins.

The potential value of the industry is enormous but much has to be done if the maximum benefit is to be derived by the colony from the presence of a native cattle population of some four million head.

As will be appreciated, it is quite impossible to effect any material improvement in the native stock until compulsory dipping becomes established throughout the Native Areas, although even this is not sufficient. Already, as has been shown, many of the Native Areas are suffering from a steady deterioration caused by overstocking and overgrazing, and the adjustment of the stock to the land together with improvement in grazing and pasture management must also receive the earliest attention. While eventually it may become necessary in certain Native Areas to insist on some form of compulsory adjustment of stock to the land, there is little doubt that as dipping becomes generally practised throughout the Native Areas and the Native cattle owner is freed from the fear of an annual heavy calf mortality, increasingly he will be prepared to dispose of his surplus mature stock.

An organisation capable of handling these surplus animals will therefore be required and the most satisfactory form that such an organisation could take would undoubtedly be the central abattoir and the cold storage plant operated along public utility lines as in Southern Rhodesia and working closely in contact with an organisation set up for the special purpose of formulating a colony-wide Native livestock marketing policy.

It has been shown elsewhere that a centralised system of livestock marketing, slaughtering, servicing, processing and wholesaling is not only desirable if tremendous wastage is not annually to be borne by the industry, but is essential if the meat requirements of the population are to be met, if an export trade in meat and meat products of value to the United Kingdom is to be built up, and if the proper development of the industry is to take place.

In the Native Areas these various problems are intimately linked together and must be viewed as a whole. Livestock improvement and higher production in the Native Areas will depend on the implementation of compulsory dipping, the control of grazing and pastures, the carrying by each area of the optimum number of stock, the organisation of an effective marketing system, and the presence in the colony of an institution capable of providing an outlet for all the stock offered and, by efficient methods of servicing and processing and the marketing of the finished products, able to pay to the Native producer a reasonable guaranteed long term fixed price.

Discussion

Professor Bisschop opened the discussion by saying that we were not yet in a position properly to apply the science of genetics to animal husbandry in the way that it was now applied to plant breeding; he therefore preferred to use the term "animal bionomics" rather than animal genetics. The two factors with which we were concerned in the breeding of animals were:—

(1) The characters derived from the animal's ancestry.

(2) The environment, which determined how far the characters or the potential characters of the animal could be developed.

Some countries, such as Britain and parts of Europe and America, were fortunate in that they could forget the environment factor, and concentrate on the genetics of animal development. It must be borne in mind that animals removed from such areas could not necessarily be expected to maintain their original characters when they were bred elsewhere, and the statement that "an Ayrshire is only an Ayrshire as long as it is in that country" was virtually true. Providing the environmental complex was equal or superior to that in the district of origin of the breed, then one could expect to maintain the breed characters, otherwise the animal was bound to be affected by the environment. He could only speak from his experience in the Union of South Africa; there the environment complex had an adverse effect on the breed characters of the European types of cattle.

He subdivided the environmental complex into four main groups.

1. Climate.
2. Nutrition.
3. Diseases.
4. Human factors.

1. *Climate.*—No really critical experiments had ever been done, although as Mr. Faulkner had quoted, several workers had recorded certain effects produced by some parts of the climatic make-up, *i.e.*, the effect of temperature and humidity on the respiration and transpiration rates and the metabolic rate. One could not generalise without knowing all the factors which together formed "climate," and we did not yet know all these factors. In South Africa a detailed experiment had been carried out to determine the effect of the recognised elements which together formed "climate," and these included observations on the infra-red and ultra-violet rays. The different aspects of the body functions were recorded six times daily, and although differences were observed, statisticians were unable to correlate the results, due to inadequate material. Night observations were not made in this experiment and he thought it probable that where cool conditions prevailed at night the animal would spend a long period under normal conditions even though the day temperature was extreme. One could not say whether the climate would have any lasting or permanent effect under such conditions.

2. *Nutrition.*—In South Africa this could not compare with the country of origin of the European cattle. It was in the main poor, with definite deficiencies of phosphorus and protein, and often actual quantitative deficiencies at certain times of the year. There were possibly areas in Kenya where conditions approximated to those of Europe but this was not so in South Africa.

3. *Diseases.*—These were different and more numerous and their effect was bound to be deleterious.

4. *Human factors.*—In Africa these did not bear comparison with Europe. The basal needs of the animal were not attended to personally, elementary rules of husbandry were not observed, *i.e.*, early breeding, overstocking, not building up food stores, grass burning, etc., occurred.

A consideration of the above four headings made it obvious that the importation of cattle was rarely justified. If improved breeds were not imported then they must concentrate on the improvement of the indigenous types of cattle.

The improvement of the indigenous cattle by selection under an environment superior to that in which they were found was futile because the improvement could not be maintained once they were returned to an inferior environment. Mr. Hammond had noted that the establishment of bull camps or the issue of comparatively small numbers of improved bulls in the Native Areas could not be expected to achieve any improvement in the cattle population since with the small numbers likely to be available the improved blood would be too diluted. Even if this were not so one could not expect the improvement to be maintained unless the environmental complex was suitable. He thought that a possible line of attack on the problem would be to select small areas where some improvement of the stock was evident or seemed possible. Improvement in these areas could be assisted by the introduction of improved bulls without unduly diluting the blood.

He had been asked to give some of the results obtained from 23 years of bionomic experiment in the semi-arid areas of South Africa. Four exogenous breeds of cattle were maintained, namely, Afrikander, Friesland, Red Poll, and Sussex. A herd of pure native cattle were kept as controls. The effect of crossing the exogenous breeds with the native was to produce a marked improvement initially. The first generation was much superior to the native in size, growth rate, etc. The second generation maintained the larger size but the animals were leggy and narrow-chested. The third cross and onwards were all small, with a great range in size down to dwarfism. Although small, the conformation was good. No deterioration was observed in the pure Afrikander generations during the same period.

The observations on the size and growth weight were made by killing steers at three years. It was found that the greater size and earlier maturity of the pure bred and the first cross were soon lost.

The fertility rate of the first cross, as shown by the number of calves produced, was higher than that of the Afrikander, which was 70 per cent., but now, after several more crosses, the fertility rate was lower.

Milk production could not be used as an index of production under the conditions of the experiment, since it depended on the climate during the year, but the crossing did not greatly affect the yield.

The incidence of all diseases increased with the higher grades, but Professor Bisschop was of the opinion that in some cases the higher incidence of disease was due to different physical characters of the breeds rather than to any difference in their inherent immunity. The incidence of ophthalmia was 70 per cent. in the Red Poll, 50 per cent. in the Friesland, 35 per cent. in the Sussex, and 17 per cent. in the Afrikander. The rather deep-set eyes and extremely active eyelid of the Afrikander would tend to protect its eyes, whereas the protruding eyeball and lazy eyelid of the Red Poll would predispose to infection. He was a disciple of his former director, Sir Arnold Theiler, in believing that the indigenous stock had no inherent immunity to African diseases.

Dr. White opened the general discussion by noting that only one of the essential components of the environmental complex was beyond our control, namely, climate. Hence, when more was known about the climate and its effect on European stock, it might be possible to select areas where they could be used to improve the indigenous cattle. The question whether to introduce exotic cattle or to improve the indigenous stock depended in some degree on the purpose of the improvement, *i.e.*, Europe's immediate and urgent need for animal products or the long term needs of Africa.

Professor Bisschop thought that even though the climatic factor were suitable, the immense inertia of the populace was a bar to the development or maintenance of improved breeds, but one should not expect quick results as one could not force biological problems.

Mr. Fiennes said that the first stage in attacking the problems was to introduce the commercial aspect of farming to the Native. If they bred cattle for sale rather than for social reasons, the poorer types could be disposed of. The reduction in numbers so effected would give the remaining animals a better opportunity for development. A policy of "breeding up" could then be adopted. In Uganda they had stimulated the natives to sell stock by holding cattle auctions and arranging for purchaseable commodities to be on show at the place of the auction. In this way cattle owners who had often only brought their cattle to exhibit them to their friends were tempted to sell. Cattle foods such as cakes and minerals were also on sale at these markets. He believed that the Buganda natives now sold cattle almost too readily.

Mr. Luke asked what consideration had been paid to the introduction of a cattle tax. He felt that it was a far more just system of taxation since cattle were the index of wealth, and he thought that the tax might aid the reduction in cattle numbers which was so necessary. He said that reduction of soil fertility in Kikuyu was pitiful, with overcropping and under-fertilisation, and that the whole system was on a downward spiral with only one outcome, complete erosion. He thought that overstocking could be halted by pressure to cull, but he did not see how the soil fertility was going to be restored or maintained.

Mr. Markham noted that meat and milk were the vital issue, apart from the bride-price value of cattle. In view of the fact that pigs were more efficient producers of meat, and goats more efficient producers of milk, might it not be better to develop these animals rather than cattle? Regarding the effect of climate, he would be interested to know whether Professor's Miller's report on the West Indies had been published yet, as he felt that observations on cattle breeding in the tropics by a man of Professor Miller's calibre should be of great value. Mr. Markham also noted that the results of breeding the indigenous stock came principally from the Baraton Training Centre: it was surely no coincidence that this was one of the few centres where there had been any continuity of staff.

Mr. Waddington referred to low fertility on the land in most of the reserves, and said that if cattle manure was put back into the soil there would be far less necessity for destocking than there was now, since the land would carry more cattle. He quoted the results of a survey he had made in Central Kavirondo, where out of 843 bomas only five used the manure on the land, the rest burnt it.

Mr. Luke suggested that in many parts there was now hardly enough grazing to supply manure.

Mr. Hammond said that the essential answer to decreasing soil fertility was the restoration of soil structure by grass fallows; manure would of course play a part in the subsequent maintenance of fertility. It appeared that the Kikuyu family were incapable of carting manure to the land, but that if they could be persuaded to fold the cattle on grass or crops, the manure would cart itself. Where natives had been persuaded to plant grass there was an immediate improvement in the standard of farming, since the people had become soil conscious. He suggested that the increased vigour shown by the first cross pure bred hybrid could be used to satisfy the immediate urgency for increased production, and at the same time maintain stock suitable to the country. The European Settlement Board was issuing such first cross animals to the new settlers, and he thought that the type would be excellent for newcomers to the colony. He knew of two farms where it was a policy to maintain separate breeding herds of Zebu and pure bred, and to use the first cross for production purposes with excellent results. He saw no reason why such a policy should not be adopted in these Native Areas where the country was suitable for milk production, and where at present the land and pasture were superior to the production capacity of the indigenous cattle. This policy could not be applied generally throughout the country.

Mr. Faulkner, referring to the failure of the Native to distribute manure, said that in Rhodesia the Native had been encouraged to do so by the Government, who were turning out a standard type of cart in fair quantities at about £10.

Mr. Edwards endorsed the need for pastures which prevented the destruction of, or restored, the soil structure broken down by cultivation. The problem was partly a sociological one, since the frequent sub-division of land by inheritance meant that one owner had numerous small scattered holdings and pasture rotation was not feasible. He was most interested in Professor Bisschop's reference to the difficulty of defining a climate or climatic complex. The necessity for developing cattle suitable for certain areas made it imperative to be able to define the climatic complex, and Mr. Edwards suggested that the type of vegetation was the key to the environment, and that stock breeding should be based on a regional vegetational classification.

Dr. Barnett asked whether the term homozygous could legitimately be applied to a breed of cattle, or even to a single character of any of the recognised breeds. He also asked if Professor Bisschop would give an outline of the origin of the Afrikander breed, as he had not realised that it was regarded as a pure indigenous type.

Professor Bisschop said that a "breed" was a certain collection of inherited factors; one could not apply the term homozygous in a strict sense, although its application to a single factor such as colour was legitimate. The Afrikander breed had arisen from the lateral horned, muscular humped *Bos indicus* which had originated in Asia Minor and had migrated to South Africa down the West Coast with little if any mixture with other blood, whereas the last coast migration had resulted in admixture with the Hamitic long-horned breed. The West Coast breed had been kept pure by the Hottentot and European although some selection for colour and shape had been practised.

Referring back to the earlier discussion about production, he said that the bovine was not necessarily the most efficient producer, but that it was the least destructive. He had observed the grazing methods of cattle, sheep and goats, and it was striking how cattle would cut off grass without disturbing the roots or base of the plant, whereas sheep and to some extent goats would eat the grass right down and destroy the plant itself.

The Chairman (Dr. White) gave a brief summary of the discussion and, as there was no further business, this most interesting meeting closed with votes of thanks to Mr. Faulkner, Professor Bisschop and the other speakers.

CLINICAL COMMUNICATIONS

Use of Barium Chloride Intravenously in the Horse

LINDSAY AUCHTERLONIE, M.R.C.V.S.

Whatton-in-the-Vale, Nottingham

Two Suffolk Punch geldings, aged four years and eight years, gained access to a 12 stone bag of wheat between 9 p.m. and 6 a.m. on the night of November 13th and 14th of last year. With the exception of some spilled on the floor of the barn, they finished the lot. At 9 a.m. on November 14th the writer could not detect any symptom of uneasiness and he immediately gave intravenously to each animal 7½ grains of barium chloride in 20 c.c. of distilled water.

Increased peristalsis became evident very shortly. The horses walked about the big straw-covered yard, frequently passing small quantities of dung and flatus. Auscultation in each case indicated satisfactory movement.

The animals were watched during three quarters of an hour, and occasional auscultation was carried out. Uneasiness was present but there was no pain sufficiently marked to cause either animal to lie down.

The writer then left the farm and returned about one and three quarter hours later when both horses were seen to be quiet. Auscultation still indicated that active peristalsis was present and the barium injections were repeated in each case. The four injections were not given without difficulty, as the well-bred Suffolk has a strong neck and the veins were scarcely palpable.

Within a few minutes there was a repetition of the march round the yard with the usual passage of excreta. Uneasiness remained much longer in the case of the older horse whose dung was firmer from the beginning. Two and a half hours after the first injection, grain, in an already swelled condition, began to appear freely in the droppings. When the initial discomfort had passed off each animal received 6 drachms of Altan and the case was then left until the 15th.

Examination on this morning showed that both animals were comfortable; indeed, there was a fair show of kicking and biting. The waggoner reported that uneasiness lasted until late in the afternoon of the 14th and that the older horse lay down and occasionally looked round at his side. There was never any violent pain.

November 16th: A visit had not been arranged for this day but an emergency call had to be made to a cow.

The owner had fasted both animals until this morning but he had put them out to grass before my visit. Both seemed much quieter but only the four year-old showed signs of loose motions. There was no scouring but occasional small soft movements were made and grain was observed to be present. On being offered some hay they both began to eat. There were no other symptoms present but it was decided to keep them in the yard for a day or two on dry food.

The writer now refers to Question CCLI in the issue of *The Veterinary Record* of August 7th, 1948.

"Is there a general treatment for colic which may be considered to surpass Reeks' treatment? Do you recommend the intravenous injection of barium chloride?"

The interpreter, who had possibly not used the latter method, falls back on Reeks who fell back on Quitman: ". . . it acts beautifully, when it kills, it kills quickly and it does the latter frequently. It is intensely painful in its effect and can bring in the end only shame and discredit on the user."

The writer assisted in a practice some eight miles from Caulton Reeks, in his lifetime. Most of the colic cases in this district were of the impacted type, owing to the coarse nature of the grass and fodder, frequently got and fed off the flood lands. The writer's Principal, the late Mr. A. Lennox, used to say that he regularly killed such cases with chlorodyne and opium, but that the physic ball and oil had wrought a wonderful change. This was the main reason for Caulton Reeks' prescription, but it by no means followed that it was applicable to all colic cases.

Reference is requested to a short article in *The Veterinary Record*, No. 22, Vol. 57, p. 266, on the method of Amadon (Barium chloride intravenously in the horse). It will become evident that its *controlled* action on plain muscle fibre only, is quite desirable, and its pharmacological action will not then be confused with that of the short acting, griping, vagal stimulators.

Treatment of Localised Laminitis with Penicillin

PAUL CROSFIELD, M.A., M.R.C.V.S.

Chipping Norton

Subject.—Hunter mare, 16 hands 1½ in., eight years.

History.—Acutely lame in near fore two days after hunting. There was considerable heat in the foot, and marked pulsation of the plantar arteries.

Diagnosis.—A localised laminitis of pyogenic origin.

Treatment.—A course of three doses of 5 c.c. of an equine pyaemic vaccine was given, at 48 hour intervals, resulting in marked improvement. This, however, was not maintained, and a second course was given, with similar results. It was, therefore, resolved to give somewhat massive doses of penicillin, and 600,000 units of "Avloprocil" (a procaine salt of penicillin, in oil) were given, the dose being repeated in 24 hours. Recovery was rapid and complete, the mare having been hunted several times since, and remaining sound.

ABSTRACTS

[A Survey of Bovine Salmonellosis in Mid- and West Wales. Field, H. I. (1948.) *Vet. J.* **104.** No. 8. 251-266. No. 9. 294-302. No. 10. 323-339. (29 refs.)]

The author reviews references to outbreaks of Salmonellosis in adult cattle and calves and of human outbreaks traced to bovines. In the parts of Wales under consideration, he reports 70 outbreaks in 1946 and 1947. In two of them the animals concerned were under 3½ months old, in another it was nine months old, while the remainder (67) were over one year old. The causal organism was identified as *S. dublin* in 66 and *S. typhi-murium* in the rest. In 50 of the 68 outbreaks affecting cattle over nine months of age only one animal was known to have shown clinical symptoms. In no outbreak were more than five animals affected. The mortality rate was 72·5 per cent. The symptoms are essentially fever followed by diarrhoea or dysentery. The disease has to be distinguished from coccidiosis, bracken-poisoning and chill. The causal organism could be continuously cultured from the faeces of recovered adults but not from recovered calves. Such adult faecal carriers can remain so for at least two years and *S. dublin* may be present in their milk. Carrier cows may transmit infection to calves *in utero* and post-natally. Serum from recovered animals usually agglutinated the causal organism to high titres, but faecal carriers were encountered having no significant level of agglutinins in their sera. Normal titres of adults may be as high as 1:160 for H-antigen and 1:40 for O-antigen. H-titres for detecting carriers seem of more value than O, 1:320 being regarded as positive. Infected calves produce H-agglutinins, not O-agglutinins, if they are very young. Desoxycholate citrate agar and, for enrichment, selenite broth were found to be the best media for isolation from faeces and milk.

A. W. G.

* * * * *

[Detection of Haemagglutination-Inhibition Antibodies in Unincubated Eggs. Schmittle, S. C., & Millen, T. W. (1948.) *Cornell Vet.* **38.** 306-309.]

The authors have shown that evidence of previous Newcastle disease in a laying flock can be accurately determined within a few hours of receipt of eggs shipped in ordinary egg cartons if the following technique is adopted: In a test tube 1·5 ml. of egg yolk are diluted and thoroughly mixed with 6 ml. of 0·85 per cent. sodium chloride. Next 2 ml. of ethylene dichloride and 1 ml. of reagent ether are added and the contents of the tube are thoroughly blended by inverting and shaking. The mixture is incubated at 37° C. overnight (approximately 12 hours) and then centrifuged at 1,000 r.p.m. for ten minutes (in an International No. 2 centrifuge). The ethylene dichloride fraction collects at the bottom of the tube and is separated from the watery solution by a fatty ring. The slightly cloudy supernatant fluid is removed with a pipette. This fluid, approximately a 1:5 dilution of egg yolk, is substituted for the serum in the haemagglutination-inhibition test for Newcastle disease.

J. F.

* * * * *

[An Outbreak of Infantile Gastro-Enteritis in Aberdeen. Giles, C., & Sangster, G. (1948.) *J. Hyg.* **46.** 1. (38 refs.)]

An outbreak of severe gastro-enteritis of children in the first year of life is described. No common source of infection could

be discovered, the majority of cases occurring when environmental conditions were bad. The number of cases was 92, the mortality 56·5 per cent. and the majority of cases occurred in children under six months of age. The symptoms were typical of gastro-enteritis and no specific treatment was discovered. Bottle-feeding appeared to predispose to the disease. At *post-mortem* examination the liver showed lesions from mild fatty degeneration to complete necrosis, the stomach and intestines showing no obvious change. *B. coli* was isolated from 92 out of 93 cases diagnosed as primary gastro-enteritis. From the other such case *Bact. dysenteriae* Sonne was isolated. Eighty-six of the 92 strains of *B. coli* were of homogeneous type serologically and culturally. They were non-motile and possessed a thermolabile K-antigen as well as the usual O-antigen. They were serologically distinct from eleven strains of *B. coli* isolated from calves dying of white scours. Similar strains of *B. coli* were isolated from 7/169 normal infants and 5/271 adults. The authors failed to infect young mice and kittens with filtrates and to infect fertile eggs.

A. W. G.

REVIEW

[**Pregnancy Diagnosis Tests**: A Review. By A. T. Cowie, B.Sc., M.R.C.V.S., PH.D. Joint Publication No. 13 of the Commonwealth Agricultural Bureaux. Great Britain. 1948. Price 15s.]

The chief methods used for the diagnosis of pregnancy by hormonal means in man and animals (mare) are based on the detection in the urine or blood of markedly increased amounts of gonadotrophic and/or of oestrogenic hormones at some stage of the gestation period. Since the date of the original investigations, notably those by Evans & Long (1922), Allen & Doisy (1923), Zondek & Ascheim (1927), and Cole & Hart (1930), leading to the development of reliable tests for these hormones in body fluids, a formidable mass of data on this subject has been published in many countries and in a variety of languages, and tribute must be paid to Dr. Cowie for undertaking in this publication the considerable task of surveying the more important papers on the laboratory methods for the diagnosis of pregnancy in domestic animals and in the human subject.

The opening chapter of this book deals with the techniques employed for the clinical diagnosis of pregnancy in domestic species, and it will not be inappropriate, we think, to note in this review in a predominantly clinical journal Dr. Cowie's comment that there is an almost complete lack of any published data on the accuracy of clinical methods of pregnancy diagnosis in animals—a fact which is in striking contrast to the mass of data available for the various laboratory tests.

Methods for the determination of pregnancy other than purely clinical procedures are classified by the author according to the nature of the basis upon which the test depends. The various pregnancy tests are thus grouped under the following six general headings: (1) Tests Based on Hormonal Investigations of Body Fluids—A. Gonadotrophic Hormones; B. Oestrogenic Hormones; C. Progestogens and Pregnanediol; D. Other Hormones. (2) Tests Based on Enzymatic Investigations. (3), (4), (5) and (6) Tests Based on Various Biochemical and Physical Investigations of Body Fuids and Tissues, or on Various Physiological and Immunological Phenomena.

By far the greater part of the text comprises a consideration of published work dealing with the identification of gonadotrophic and gonadal hormones in blood and urine. The applicability and accuracy of the various tests under different conditions and for different species is dealt with by reference to the more important studies in the appropriate endocrinological field. It can be said that in this section of his book, as also in those dealing with those diagnostic tests for pregnancy held to be of lesser importance, Dr. Cowie has very successfully achieved the limited objectives he set himself in undertaking the preparation of his review, namely, "to provide the scientific worker with a brief summary of the more important researches leading to the development of pregnancy tests in domestic animals, and to provide an adequate bibliography of the widely scattered literature."

The book will, doubtless, be of more direct interest to research workers concerned with animal and human reproduction than to the practising veterinarian, although even the latter will not fail to find much of practical value in the comprehensive picture of the development of tests for pregnancy in animals which Dr. Cowie, himself a veterinarian, presents.

The quality of the printing and the type used for headings and sub-headings are less satisfactory than one has a right to expect in a publication issued by the Commonwealth Agricultural Bureaux. These defects make prolonged reading of the text at a stretch difficult, whilst the absence of bolder lettering for headings tends to be merely as irritating as it is unnecessary in a properly edited proof.

Questions and Answers

The submission of questions for inclusion in this column will be welcomed; they can relate to any aspect of veterinary work. For purposes of record, each question is numbered, and those submitting questions are required to furnish (not for publication) name and address.

Answers to readers' queries represent exclusively the personal opinions of the writers, and criticism of the replies will be appreciated.

All communications should be addressed to the Editor.

Certificate for Horse With "Technical" Unsoundness

Q. CCLXXXI.—*Is there a universally accepted definition of soundness in horses?*

How should one draft a certificate in respect of a horse which has a technical unsoundness, e.g., splint or curb, which is not interfering with the soundness of the horse, without prejudice to the animal?

A.—There is no universally accepted definition of soundness in horses, but in this country a definition could be based on what is known as *Parke's Rule as to Unsoundness in Horses*. On August 18th, 1838, at Bristol Summer Assizes, in *Coates* v. *Stephens*, Baron Parke laid down a rule that is still observed in cases of unsoundness in horses. This is it: "If at the time of the sale the horse has any disease which either actually does diminish the natural usefulness of the animal so as to make him less capable of work of any description, or which in its ordinary progress will diminish the natural usefulness of the animal; or if the horse has either from disease or accident, undergone any alteration of structure that either does at the time, or in its ordinary effects will diminish the natural usefulness of the horse, such a horse is unsound."

Later on, in *Kiddell* v. *Burnard* (1842), Baron Parke again stated his rule which was concurred in by Baron Alderson saying: "I am of the same opinion. The word sound means sound, and the only qualification of which it is susceptible arises from the purpose for which the warranty is given. If, for instance, a horse is purchased to be used in a given way, the word sound means that the animal is useful for that purpose, and unsound means that he at that time is affected with something which will have the effect of impeding that use. If the disease be one easily cured, that will go in mitigation of damages. It is, however, right to make to the definition of unsoundness the addition my brother Parke has made, namely, that the disqualification for work must arise either from disease or accident."

This ruling allows us to say of soundness—a horse is sound if it is free from any disease, abnormality, defect or impediment which impairs, or in the future will be likely to impair, its usefulness.

The word sound being thus a relative term, meaning fitness for the purpose to which the animal is to be put, one would be well advised in practice to avoid using it altogether.

In the Horse Breeding Act 1918, there is no mention of the word soundness; it simply gives a list of ten conditions which are considered to render a stallion unsuitable for breeding purposes, and these are what the veterinary surgeon looks for in his examination.

In drafting a certificate for an animal, after describing it in accordance with the scheme of descriptions of colours and markings of horses as approved by the R.C.V.S., and mentioning everything you have discovered during your examination (osseous enlargements, thickened tendons, ligaments, etc.), you conclude by saying: "in my opinion this animal is free from anything that impairs, or in the future is likely to impair, its usefulness." If you are requested to give a certificate for a horse purchased under Tattersall's conditions of sale, *i.e.*, good hunter, you simply say: "in my opinion the animal answers the description given of it in the catalogue."

For those who have to satisfy clients who insist on the use of the words "sound" or "unsound," it facilitates matters to have printed on the certificate form, either above, at the side, or below, a clear statement: "For the purpose of this certificate it is understood that the term 'sound' means that the animal is free from any disease, defect, abnormality or impediment at present impairing, or in the future likely to impair, its usefulness."

. . . . . .

Morphia in the Horse

T. CCLXXXII.—*In Pharmacology we are taught not to use morphia as an injection in the horse as it creates great excitement. Several practitioners I know state otherwise and have used it, saying that small doses may cause excitement, but full doses do not. Would you kindly give me your views on the subject?*

A.—Small doses of morphia do not cause excitement in the horse, large ones do. Your respondent well remembers, when at the Veterinary School at Zürich, seeing a 9 cwt. pony which had experimentally been given 15 grains of morphine sulphate intravenously; the animal was in a pitifully excited condition, twitching, and quite unable to keep still. It will be found that 4 grains of morphine sulphate subcutaneously is adequate to diminish pain in a hunter

or medium-sized cart-horse. Moreover, this small dose will scarcely interfere with peristalsis.

In the respondent's view, however, morphia may be more than adequately replaced by other drugs, notably chloral hydrate, and should not be used.

* * * * *

Umbilical Hernia in the Foal

Q. CCLXXXIII.—*I have found umbilical hernia to be more frequent than usual this year in thorough-bred foals.*

I use the clam in dealing with these cases, but recently met a veterinary surgeon who told me he had heard or read that an injection of 1 c.c. stilboestrol would effect a cure.—Do you know anything of this?

A.—Neither the respondent nor colleagues he has consulted have heard of the use of oestrogenic hormone for the cure of such a condition, and are unable to find any references in the literature. The rationale of such a treatment is difficult to understand. There is a connection between oestrogens and inguinal hernia, since it is known that prolonged administration of large doses of oestrogen to mice will cause inguinal hernia.

This is not a very helpful answer to the question posed, but it does look as though there is no reason to believe that stilboestrol treatment would cure umbilical hernia.

* * * * *

Head-Nodding Associated with Hysteria or Sub-Clinical Distemper

Q. CCLXXXIV.—*Since resuming practice two years ago I have noticed a symptom in dogs, usually under two years old, to which I have seen no reference in literature, nor have I heard any discussions in professional circles concerning it.*

The symptom is fairly common and consists of a slight head nodding. This is initiated by spasms of the neck muscles. Usually about four or five such spasms produce the same number of "nods" of the head, and during this the chin is progressively lowered. Sometimes the pectoral muscles are involved and the fore-end stance of the dog will show the equivalent of the head nod. I have never observed the involvement of the pectoral muscles without the head also and therefore regard these cases as more advanced than those showing head nodding alone. Each spasm is usually accompanied by a blink of the eyes. The whole thing occupies less than a second or about that. It may occur once during a consultation in the surgery or the patient may do it as often as three times per minute.

It is invariably associated with either hysteria or sub-clinical distemper. I have found it possible accurately to anticipate hysteria in such cases.

I have never had the benefit of anyone's views about this matter and would welcome them.

A.—The syndrome described by the questioner is, in the writer's view, always associated with one of the virus diseases causing encephalitis, notably hard pad disease. The impression given is that of a palsied person and is quite distinct from chorea. The writer has seen slight head nodding cases which have followed some weeks after the occurrence of slight inappetence and diarrhoea, often of so little significance that the owner has ignored and forgotten it until closely questioned.

These cases respond well to vitamin B and arsenic therapy; in some instances there is evidence of myocardial damage and these should receive appropriate treatment, including the exhibition of vitamin E. Cases in which the whole forequarter is involved usually presage the onset of continuous fits or the uncontrollable whimpering and crying of brain damage; these are almost invariably hopeless.

* * * * *

Correspondence

Injection in the Pregnant Bitch: Penicillin Therapy

Sir,—The remark that "... nothing is known of the value of penicillin therapy in the pregnant bitch ..." in the "Questions and Answers" of the issue of January 8th, 1949, prompts the following information.

While reasonable results have been claimed for *beta haemolytic streptococcus* vaccines in varying doses prior and subsequent to mating, and while healthy litters are reported to have been so obtained from previously sterile bitches, undoubtedly far better results have followed the administration of penicillin, 100 per cent. successes being obtained in over 50 cases where previous litters have all died with the typical B.H.S. syndrome. The treatment in the bitch has consisted of a series of six injections of 100,000 I.U. penicillin, the first being given two days prior to mating, the succeeding ones at fortnightly intervals throughout pregnancy, and the last at the completion of whelping. It has been found that a B.H.S. puerperal fever which often occurred following vaccine therapy is obviated by the use of penicillin.

Following birth each puppy should be given a minimum dose of 30,000 I.U. penicillin, preferably intramuscularly. In acknowledged "B.H.S. kennels" it has been noticed that a cessation of growth and weight increase often occurs at the age of three weeks. If the weight remains stationary for two or more days 50,000 to 100,000 I.U. penicillin should be given, after which the puppies will continue to thrive and progress normally.

It cannot be stressed too strongly that large doses must be given, anything less than 30,000 I.U. being useless if not directly harmful.

As with vaccine therapy, it is found that subsequent whelpings must, in general, be treated in a like manner, though in a number of cases, particularly in Scotch terriers, subsequent whelpings have taken place without the need for penicillin therapy.

Yours faithfully,

P. W. Daykin.

Veterinary Infirmary,
45, St. James' Street,
Nottingham.
January 10th, 1949.

* * * *

The Treatment of "Wens"

Sir,—I humbly beg to differ from the answer to Question CCLXXV. In my opinion the writer is not dealing with "wens" but another condition known as "lumpy jaw."

"Wens" are a condition met with in cattle consisting of tumour-like growths varying in size from that of a hazel nut to that of a football, usually situated in the soft tissues and skin of the head and throat, although they may occasionally be found elsewhere, *e.g.*, shoulder, flank and limbs. "Wens" are very prevalent in fen districts and are most frequently encountered amongst cattle wintering in yards, fed on straw. The incidence varies considerably year by year.

Treatment with potassium iodide *per os* or with sodium iodide by intravenous or subcutaneous injection appears to have little if any beneficial effect. I have no knowledge of any injection which is useful in the treatment of this condition.

Yours faithfully,

Philip E. Emson.

Bourne,
Lincolnshire.
January 3rd, 1949.

TO STOP "FAKED PEDIGREES"

Criticism of S.H.S. Foal Registration Scheme

"Criticism of the newly formulated foal registration scheme was voiced at last week's meeting of the Council of the Shire Horse Society in London," states the *Farmer and Stock-Breeder* in its issue of January 18th, and continues: "Under the scheme, members are required to forward to the secretary pedigree, colour and full markings shown on a sketch card.

"Mr. J. Downes Evans said the scheme did not reach breeders who belonged to the hiring societies and were not members of the parent society.

"The scheme had been drawn up and agreed to in order to stop faked pedigrees, said Mr. Ghris Catterall. They would not stop the faking of pedigrees if they were not going to carry on with the scheme which made for the ready identification of foals.

"Mr. Offiler moved that the scheme should be suspended for 1949-born foals and that a small sub-committee be appointed to go into the whole question.

"Messrs. Catterall, Cumber, Frank, Norman Lloyd and J. M. Belcher were appointed as a committee to act."

* * * * *

Weekly Wisdom

... I am myself engaged in such an industry [gambling] *and dependent on it for my livelihood. All professional authors, playwrights, composers, painters, publishers, theatre managers, music sellers, and picture dealers live by gambling in values more desperately uncertain than the chances of any starter in a horse or dog race. No turf book-maker would budget for such odds ... Why is property in turnips made eternal and absolute when property in ideas is temporary and conditional?*—George Bernard Shaw (rising 93) tilting at the taxation of authors. (Letter to *The Times*, January 18th, 1949.)

* * * * *

Fines and costs totalling £139 7s. were imposed on two men at Cannock on 14 summonses relating to illegal movement and slaughtering of pigs and sales of pig meat in a private house contrary to the rationing order.

QUESTIONS IN PARLIAMENT

Pit Horses and Ponies

Mr. Peter Freeman asked the Minister of Fuel and Power how many horses and ponies have been removed from the pits because of old age, infirmity, or other reasons, during 1948; how many of these were humanely destroyed; and how many were sent to homes for rest for horses.

Mr. Robens: For the year ended June 30th, 1948, the number of horses and ponies cast or humanely destroyed because of disease, old age or infirmity, was 1,600. As regards the second part of the Question the information is not available.

Mr. Freeman: What steps, if any, are taken to prevent these ponies being slaughtered for human consumption after leaving the pits?

Mr. Robens: The Department is only responsible for the collection of information as to those which are killed or cast. I have no information on the point raised by my hon. Friend.

Lt.-Col. Sir Thomas Moore: Cannot the hon. Gentleman say how many of these ponies are actually sold to dealers irrespective of what happened to them afterwards? The facts are known in his Department, so he should know.

Mr. Robens: No. These figures are not supplied to the Department under the Act.

Mr. Austin: When will modernisation and mechanisation enable us to dispense completely with the use of pit ponies?

Mr. Robens: I replied to a similar question some time ago. I indicated that the number of pit ponies was steadily decreasing and that, in the course of time, pit ponies would no longer be used.

* * * * *

Flour (Bleaching Agent)

Sir E. Graham-Little asked the Minister of Food whether he is aware that the use of agene for bleaching flour provided for human consumption has been prohibited in the U.S.A. in accordance with the advice tendered by the Food and Drug administration; and what steps he is taking to prevent the use of agene in this country.

Mr. Strachey: I am aware that the use of nitrogen trichloride is to be discontinued in the U.S.A. on August 1st next. As I informed the House on December 13th, a small scientific committee under the chairmanship of Sir Wilson Jameson, Chief Medical Officer of the Ministry of Health, has been set up and is at present reviewing the results of experimental work on flour improvers now in progress in the United Kingdom and the data submitted in evidence at Washington.

NOTES AND NEWS

Diary of Events

Feb. 3rd.—Meeting of the Central Division, N.V.M.A., at the Royal Veterinary College, N.W.1, 2 p.m.
Feb. 8th.—Scientific Meeting of the Zoological Society of London, Regent's Park, N.W.8, 5 p.m.
Feb. 8th.—Royal (Dick) Veterinary College Annual Ball.
Feb. 9th.—Meeting of the Editorial Executive Sub-Committee, 36, Gordon Square, W.C.1, 2.30 p.m.
Feb. 16th.—Meeting of the Section of Comparative Medicine, Royal Society of Medicine, 1, Wimpole Street, W.1, 5 p.m.
Feb. 18th.—Meeting of the Sussex Division, N.V.M.A., at Brighton (Old Ship Hotel), 2.30 p.m.
Feb. 23rd.—Annual Meeting of the South Eastern Division, N.V.M.A., at Maidstone (Royal Star Hotel), 2.30 p.m.
Feb. 25th.—Liverpool University Veterinary Society Annual Ball.
Feb. 26th.—Meeting of the Society of Women Veterinary Surgeons at the Royal Veterinary College, N.W.1, 2 p.m.
Aug. 8th to 13th.—Fourteenth International Veterinary Congress, Central Hall, Westminster, and Church House, Westminster, London, S.W.1.

* * * *

Sixty-Seventh Annual General Meeting of the N.V.M.A.

Conforming to the decision of the Council at its meeting in London on January 7th, the Officers of the Association, with representatives of the Central Division, have had a preliminary meeting to discuss the arrangements for the Congress of 1949.

Members of the Association will be aware that the XIVth International Veterinary Congress is to be held in London from August 8th to 13th (inclusive). Obviously, it was desirable to fit the arrangements for the N.V.M.A. Congress in with those of the "International" but in these circumstances it is impossible to have an Annual Congress of the normal scope and duration.

The Programme Committee of the International Congress has generously agreed to place facilities and time during the latter part of the "International" week at the disposal of the Association. In addition, the Principal of the Royal Veterinary College has agreed to explore the possibility of having a day of demonstrations, jointly arranged, at Camden Town on Monday, August 15th. It has therefore been decided to hold the 1949 Annual Congress of the N.V.M.A. in London from August 12th to 15th (inclusive).

Most members of the profession will be aware that on instructions from the Permanent Committee of the International Veterinary Congress, the theme of this year's "International" will be the "Role of the Veterinary Profession in the Production of Food for Human Consumption."

This choice of subject leaves the Committee responsible for organising the International Congress little scope to arrange to cover the small-animal side of veterinary practice. It has therefore been decided that the N.V.M.A. Congress, arranged in conjunction with the "International," concentrate on the discussion of clinical subjects, particularly those relating to small-animal practice.

The purpose of this preliminary announcement is to give members of the Association early notice of the proposed arrangements. They are invited to communicate to the General Secretary, N.V.M.A., suggestions as to subjects and contributors, from both home and overseas countries, so that a programme specially attractive to clinicians and worthy of British veterinary science be staged on this important occasion.

* * * * *

XIVth INTERNATIONAL VETERINARY CONGRESS

S.W.V.S. Hospitality for Women Delegates

It is hoped that a number of women veterinary surgeons from abroad will be among the delegates to the XIVth International Veterinary Congress to be held in London next August.

The Society of Women Veterinary Surgeons wishes to extend its hospitality to them during their stay for the Congress itself and afterwards if they wish to see other parts of the country.

Any member of the Society desiring her name to be included among those willing to entertain one or more of the delegates either during or after the Congress as her guests, is requested to notify the President, Miss M. J. Freak, M.R.C.V.S., 15, Park Avenue, Potters Bar, Middlesex, if possible before the end of March.

* * * * *

CITY OF EDINBURGH

Post of Assistant Veterinary Inspector

Intending applicants for this appointment are advised to communicate with the General Secretary, N.V.M.A., 36, Gordon Square, London, W.C.1. It is hoped that no member of the Association will attend for interview before responding to this request.

* * * * *

Fees for Lectures given by Members of the Veterinary Profession at Agricultural Colleges and Farm Institutes

The N.V.M.A. is reviewing the present position regarding the terms and conditions of appointments as part-time lecturers at agricultural colleges and farm institutes. Members holding appointments of this nature are invited to send full details to the General Secretary, N.V.M.A., 36, Gordon Square, W.C.1.

* * * * *

N.V.M.A. Membership Subscription

The attention of members is drawn to the following Article of Association of the N.V.M.A.:—

35. During the first week of March in each year, notice

shall be sent to all members whose subscriptions shall be unpaid. Should the subscription of any member remain unpaid by the 30th day of June, he shall cease to be entitled to receive the publications of the Association or to attend or vote at any General Meeting but shall remain legally liable for his subscription. If the subscription of a member shall be in arrear for one year he shall cease to be a member of the Association.

In the past, through failure to pay their subscriptions when due, the Association has been in the unfortunate position of having to remove the names of a number of members when it had been only a matter of inadvertence that the subscription had not been paid. The Officers of the Association will be pleased if this position can be avoided in future by members recognising the need to have their subscriptions paid in good time.

The majority of members find a banker's order the most convenient method of payment, and the General Secretary will be glad to send one of these forms to any member desirous of adopting this system.

* * * * *

PERSONAL

Mr. W. G. Beaton's Appointment

Mr. William G. Beaton, M.R.C.V.S., D.V.T.M. (EDIN.), Deputy Director of Veterinary Services, Nigeria, has been appointed to the post of Director. This promotion, which took effect from September last, recognises a long term of most valuable service rendered by Mr. Beaton to the Veterinary Department of Nigeria, first as Assistant Veterinary Research Officer, later as head of the first Veterinary School to be established in Nigeria, and since 1937 as Deputy Director of Veterinary Services.

. . . . .

The Colonial Office also announces the appointment of Mr. Howard Read Binns, M.A. (CANTAB.), M.R.C.V.S., Deputy Director of Veterinary Services, Palestine, as Scientific Officer, East African Veterinary Research Organisation; also of Mr. Robert M. Gambles, M.A. (CANTAB.), B.SC. (EDIN.), M.R.C.V.S., Veterinary Officer, Cyprus, as Senior Veterinary Research Officer, Nigeria.

. . . . .

Births.—Singleton.—On January 11th, 1949, to Mary (*née* Hattersley), wife of A. G. Singleton, of 30, Brockholme Road, Liverpool, 18—a son.

Witherington.—On January 5th, 1949, in Singapore, to Christina, wife of Douglas H. Witherington, M.R.C.V.S.—a daughter, Christine Anne.

. . . . .

Bequest to National Veterinary Benevolent and Mutual Defence Society

Will.—Mr. George Elmes, F.R.C.V.S., of Heath Lodge, Harpenden Road, St. Albans, Herts, who left £75,127 (net personalty £74,970), bequeathed the sum of £500 to the National Veterinary Benevolent and Mutual Defence Society.

* * * * *

SALE OF YOUNG CALVES

New Procedure at Collecting Centres

Complaints have been made in the past about the practice of presenting at collecting centres calves only a few days old, and sometimes only a few hours old. The Ministry of Food announces that, by agreement with the National Farmers' Union and the agricultural departments, revised instructions have been issued to the district chairmen of auctioneers.

In future they will not accept for grading at the collecting centres for purchase by the Ministry of Food any calf whose navel is not naturally dried off, or which, by reason of its tender age or from any other cause, is in an exhausted or distressed condition or is not in a fit condition to stand a further journey.

Farmers who have calves in this condition for immediate disposal should take the animals direct to the nearest slaughterhouse, or to a slaughterhouse indicated by the district chairman of auctioneers, where the animals will be accepted by the Ministry of Food for purchase under the casualty procedure.

* * * * *

MEAT INSPECTION IN ENGLAND

"Meat inspection in England is far behind what is the practice in many other countries," observes the *British Medical Journal* in its issue of January 22nd, and proceeds: "In a paper read earlier this year at the annual conference of the National Veterinary Medical Association, Mr. Horace Thornton* made several suggestions for its improvement, but his contention that there had been virtually no change in 50 years will not pass unchallenged. A reduction in the number of slaughterhouses from some 16,000 to under 600 during the war years and the appointment by the Ministry of Food of a team of advisers on meat inspection, mostly veterinary surgeons, have in fact resulted in a noticeable improvement. In England inspection is still done almost entirely by sanitary inspectors holding a special certificate in meat inspection, a system which many people think should give way to one supervised by veterinary surgeons.

"Emergency killings—that is to say killings done without prior notice and in unauthorised places—have always caused trouble. Figures from Germany show that three-quarters of the illnesses caused by meat infected with *Salmonella* can be traced to emergency killings, in spite of the fact that there the law requires such carcases to be detained until they have been examined bacteriologically; in Austria no emergency slaughter is allowed at all. In several countries tuberculous meat is passed after sterilisation, but this has never been legalised here, and, though some meat would be saved, it is doubtful if even to-day the British public would look favourably on such a practice. In the past British standards of judgment were severe, and much good meat, when inspected at all, was condemned unnecessarily. But during the war meat inspectors began to show greater discrimination, and there is no reason to believe that they do not still pass as much meat as is possible without risk to the public.

"Meat inspection in England could be greatly improved. The Ministry of Health has for over 20 years advocated the *ante-mortem* inspection of animals awaiting slaughter, but few local authorities have made the necessary veterinary appointments. *Ante-mortem* inspection reveals many animals which are obviously sick but which may show few physical signs of disease on *post-mortem* inspection. Such inspection is desirable, but the routine inspection of one carcase after another is dull and monotonous work which few veterinary surgeons would care to undertake even if there were enough of them, and it might be better to appoint trained and experienced men, not necessarily sanitary inspectors, to do the routine work under the general supervision of a veterinary surgeon, as is the practice in Scotland. But such a change would not be possible unless the Government decided to restrict permanently the number of slaughterhouses. Many of them, too, need to be drastically improved. There is much to be said in favour of combining the supervision of slaughterhouse inspection with the control of disease in herds, a function of the Animal Health Division of the Ministry of Agriculture."

* * * * *

INTERNATIONAL POULTRY RESEARCH AWARD

The Poultry Association of Great Britain has initiated an International Poultry Research Award as a Memorial to the late Tom Newman, who did so much for poultry husbandry. The Award will consist of a medal and a cash prize of £50. It will be made each year for the most important contribution in poultry husbandry research work, published the previous year, for the benefit of poultry husbandry. The first Award will be made in respect of the year 1948.

The Award Committee, which will have corresponding secretaries in various foreign countries in which poultry husbandry is developed as an industry, consists of three members of the Council of the Association, together with Professor T. Dalling, M.A., M.R.C.V.S., Professor R. C. Punnett, M.A., F.R.S., and Mr. E. T. Halnan, M.A.

The Secretary of the Committee is Mr. John R. Harvey, F.C.I.S., F.R.ECON.S., General Secretary, Poultry Association of Great Britain, Ltd., Wigton House, 206/212, St. John Street, London, E.C.1.

* * * * *

"AFRICAN PROBLEM NUMBER ONE"

In the course of his speech at Cardiff on Thursday of last week, Mr. Rees-Williams, Parliamentary Under-Secretary for the Colonies, in outlining measures for colonial development, spoke of eradication of the tsetse fly as "African problem number one." The solution would be ensured by a combination of methods including the use of antrycide, selective clearing, aircraft spraying, the provision of water supplies, and the making of communications. In the long-term use of antrycide legislation might be needed to control movement on to unsettled land, to ensure orderly settlement, and to safeguard the land in every way by the development of State farms, collective holdings, and things of that sort.

Speaking of monopolies and royalties, he said there were large annual payments in some areas which the industry or private individuals had to pay and which yielded no return to the public and gave no service to the industry upon which the royalty was

* *Vet. Rec.*, 1948, **60**, 595.

levied. This was an intolerable situation and they were resolved to deal with it as soon as practicable.

"Our aim," he added, "is to have a situation in every colonial territory where the Governor or other important broadcasters can go to the microphone and talk to the whole country. We believe that a system of country-wide broadcasting will be an enormous educative factor, and, indeed, there can be no real mass education without it. Our plans are laid to this end, but, of course, here again the shortage of supplies and technicians will determine the rate at which progress can be made; but our aim is there—a complete colonial network."

* * * * *

FOOD AND AGRICULTURE ORGANISATION OF THE UNITED NATIONS

Nairobi Meeting on Rinderpest

October 28th to November 1st, 1948

The conference was attended by delegates from F.A.O. (K. V. L. Kesteven), China (S. C. Cheng), U.S.A. (Richard E. Shope), Egypt (R. Daubney), United Kingdom (Sir Daniel Cabot), and the Colonial Office (R. Simmons).

A brief Press notice has been circulated, giving the programme of the Conference and a summary of conclusions.

The conclusions were as follows:—

1. It is the considered opinion of this meeting that, with the prophylactics now available being effective and cheap to produce, the eradication of rinderpest is a practical possibility and should be carried out without further delay.

2. *Vaccines.*—The meeting has discussed at some length the current methods of immunisation and is of the opinion in reference to the various vaccines available as follows:—

(*a*) *Serum Virus Simultaneous Immunisation*

Serum virus simultaneous immunisation cannot be supported in view of the danger of disseminating virulent infection.

(*b*) *Inactivated Virus Tissue Vaccine*

This vaccine is not recommended for general use because of:—

(*i*) Short term immunity conferred.

(*ii*) High cost of production in finance and animals.

(*iii*) Danger of spreading the disease due to the occurrence of atypical and, therefore, unrecognised cases which occur during the waning period of immunity which results from the use of this vaccine.

(*iv*) Bulkiness of the product for transportation and administration.

(*c*) *Goat Virus Vaccine*

This vaccine has been used with great success on a large scale for certain types of stock. The following points are noted:—

(*i*) It is too virulent to be used with certain types of animals unless administered with anti-serum and this procedure is costly, unwieldy and at times untrustworthy.

(*ii*) This vaccine causes a slight mortality when administered to animals not in good health, or moved immediately after immunisation, despite their normal natural resistance to rinderpest and this vaccine. Also it is unsafe to use this vaccine on animals advanced in pregnancy in that abortions may result.

(*iii*) With our present knowledge of the living virus vaccines this virus appears to be the most stable and suitable for stock with a degree of natural resistance.

(*d*) *Lapinised Virus Vaccine*

While this vaccine has proved to be of greater value than any of the preceding ones in China, it is still in the experimental stages elsewhere. The meeting recommends that work should be carried out to test the value of this vaccine in other areas as soon as possible. Indications from the work done in China are:—

(*i*) It is less virulent than Goat Virus vaccine, and can be used on highly susceptible animals without ill effects and with a minimum of reaction.

(*ii*) A few cases of abortion have been reported following the use of this vaccine in the field; proof that the abortions have been caused by the use of this vaccine is not available and investigation of similar cases is recommended.

(*iii*) Dissemination of information on rabbit husbandry in the laboratory is desirable.

(*e*) *Avianised Virus Vaccine*

This vaccine has been used with great success in China, causing less reaction than any other attenuated virus vaccine, and no deaths. The following points are noted in relation to this vaccine:—

(*i*) Difficulty of adaptation of the virus to egg embryos has occasionally been experienced and the meeting recommends further research on this aspect.

(*ii*) This vaccine may be appropriately attenuated to a point where it becomes an effective and safe vaccine for use on hypersusceptible animals.

(*iii*) Passage of the virus in eggs may be continued to a point where the effective attacking power of the virus is lost and it is no longer of value as an immunising agent. This risk may be obviated by careful preservation of material for seed virus production when the correct stage of attenuation is reached.

(*iv*) Under present methods of production, the keeping qualities of this vaccine are variable. It is recommended by the meeting that further work be done with a view to the production of a more stable product for the workers in the field.

(*v*) An essential feature is the necessity for a constant supply of disease-free fertile eggs.

(*f*) *Keeping Qualities of Living Virus Vaccines*

At the present time there is a great variation in the keeping qualities of these vaccines. As vaccines which are more attenuated are used in the field causing little or no reaction in the vaccinated animals, the necessity to deliver to the field a vaccine of dependable potency and high keeping qualities is essential. The meeting, therefore, recommends that immediate research work be carried out to improve the keeping qualities of these vaccines and that modern equipment be made available to all production centres to make this possible.

(*g*) *Hypersusceptible Animals*

The present knowledge indicates that the avianised virus vaccine is the most suitable and safe immunising agent for the protection of hypersusceptible animals.

(*h*) *Duration of Immunity*

Living attenuated virus vaccines confer a long-term immunity and, therefore, as they become available, should be the only vaccines used in any eradication programme.

(*i*) *Cost of Vaccines*

There is no doubt that the living attenuated virus vaccines are the cheapest form of prophylactic. The cost of each of these will vary according to local conditions, but it is considered that when fully developed, the bulk production of avianised vaccine would be the cheapest, but further investigation is required to determine the place of lapinised virus vaccine.

(*j*) *Stability of Attenuation*

In connection with any rinderpest eradication programme proposing the use of one of the attenuated viruses, it is important that the attenuated virus used be certifiable as non-contagious in any of the bovines to which its administration is proposed. Further research should be conducted with the attenuated rinderpest virus vaccines to establish beyond doubt their lack of contagiousness in bovines and their degree of reversibility in virulence on serial back passage through bovines.

3. *Dissemination of Information*

The meeting is of the opinion that much time and effort would be saved by the immediate dissemination of information on new developments in technique and the results of research work carried out at the various laboratories. It is therefore recommended that such channels as the Commonwealth Bureau of Animal Health, the contemplated African Rinderpest Organisation, the International Office of Epizootics and the Food and Agriculture Organisation of the United Nations be utilised to ensure that all laboratories concerned are kept informed of the latest developments. It is left to the individual countries to decide which Organisation they inform and the Organisations to pass the information to each other.

The meeting also recommends that the papers presented at this meeting and a precis of the proceedings be published and given the widest distribution. It is felt that the material would be of great value, not only to the laboratories, but also to the man in the field.

4. *Field Control*

Effective control and eradication in the field can only be attained by the closest international co-operation, particularly in regard to boundaries. This meeting endorses the principles laid down by the African Rinderpest Conference and recommends that a meeting be held in the near future in Asia and the Far East as suggested at the F.A.O. Conference held at Baguio, to consider in particular the field aspects of the problem of eradication in Asia and the Far East.

5. *Maintenance of Reserve of Vaccines*

The meeting welcomes the offer of the National Research Bureau of Animal Industry, China, to hold in reserve a quantity of avianised vaccine for use in the event of an outbreak occurring in a country not at present afflicted with rinderpest. It is recommended that when other laboratories are in a position to maintain a reserve of this vaccine, the information be passed to the Organisations already referred to in paragraph 3.

6. *General*

The African Rinderpest Conference, examining the question of eradication of rinderpest in Africa, has drawn attention to the special problems which exist in certain territories, namely, the Anglo-Egyptian Sudan, Eritrea, Ethiopia and Somalia, and envisaged that assistance might be required in the spheres of finance, provision of personnel and provision of prophylactics. Further, attention was directed to the existing overstocking of certain areas in these territories. This overstocking will become accentuated as control of rinderpest progresses. In view of these dangers, the marketing and utilisation of surplus stock is imperative. The African Rinderpest Conference considered that F.A.O. would be the most suitable organisation to consider the solution of these problems.

This meeting strongly endorses these recommendations and draws attention to the existence of similar problems in areas in Asia and the Far East which will also require solution.

. . . . . .

No one will quarrel with item number one, that the products are now available for the eradication of rinderpest. The two major remaining requirements are social and political and to a considerable extent each is linked up with two other factors, finance and international relations.

When discussing "goat virus" the condensed statement does rather less than justice to a method that has been the most important development in rinderpest work during the last half century. As is sometimes the case when Africa is the centre of an animal disease discussion, there is some indication that conditions in certain other parts of the world are hardly given full consideration, particularly conditions in Asia.

Few observers have much experience of either of the relatively new products, "lapinised virus vaccine" or the "avianised virus vaccine," and until considerably more field work on their value is published it will be difficult to access their real worth in the varied conditions in which rinderpest has to be combated. They offer great possibilities of success, but in different circumstances likely to be encountered, limitations inherent in the nature and properties of both types of vaccine may hinder their use until more experience has been gained.

It is pertinent to remark that a great deal of control of rinderpest has been attained in the past and that this control was achieved by good old-fashioned methods of immunisation—so much control that veterinary departments have been blamed for encouraging too many animals to survive with the result that there has been overstocking.

The use of a culture vaccine of appropriate immunising value and with a sufficient margin of safety, is very attractive and it is to be hoped that those with experience of rinderpest. in the countries in which it is endemic, will be able to advance still further knowledge of immunisation required for its control.

* * * * *

ADDRESSES OF DISEASE-INFECTED PREMISES

The list given below indicates, first, the county in which are situated the premises on which disease has been confirmed, followed by the postal address and date of outbreak.

SWINE FEVER:

Warwickshire.—56, Vinecote Road, Coventry (January 17th).

SHEEP SCAB:

Denbighshire.—Tir Gwasted Field, Trawscoed Road, Llysfaen, Colwyn Bay, Denbighs (January 14th); Cefn Dyfrdwy, Llangerniew, Abergele, Denbighs (January 17th); Bron Pistyll, Bettws Abergele, Abergele, Denbighs (January 20th).

Lancashire.—Stud Farm, Pleasington, Blackburn, Lancs. (January 20th).

* * * * *

NORTHERN IRELAND MINISTRY OF AGRICULTURE SECRETARY

Mr. D. A. E. Harkness, C.B.E., Senior Assistant Secretary in the Northern Ireland Ministry of Agriculture has been appointed secretary in succession to the late Dr. G. Scott Robertson.

Mr. Harkness was acting secretary in the Ministry when Dr. Robertson was given leave to become the first director of agricultural production and research under the Food and Agricultural Organisation. A Scot, he was assistant to the Professor of Economics at Queen's University before joining the Northern Ireland Ministry of Agriculture in 1924 as chief of the statistics and intelligence branch. In 1926, Mr. Harkness was appointed lecturer in agricultural economics at Queen's, a position which he held until shortly after his appointment as an assistant secretary in the Ministry in 1936. He became the senior assistant secretary in 1939.

Mr. Harkness, who has a wide reputation in the agricultural economics field, was responsible for important organising work behind the Milk and Milk Products Act, 1934, the Egg Marketing Scheme of 1936, and the Pig Marketing Scheme.

* * * * *

MINISTRY OF AGRICULTURE NEWS SERVICE

Poultry and Attested Herds.—Many farmers have asked whether poultry may be allowed free range on farms where an attested or licensed T.T. herd is kept. Avian tuberculosis—the only type of the disease found in poultry—can be picked up by cattle with their grass or fodder, and may cause them to react to mammalian tuberculin. It is very exceptional, however, for avian infection to cause progressive disease in cattle.

Before the introduction of the comparative tuberculin test, farmers were advised not to let their poultry and cattle run together, but now that both avian and mammalian tuberculins are used, no such restriction is necessary, because it is possible to determine whether reaction is due to bovine tuberculosis or to avian or other non-specific infection.

In certain circumstances, however, there are disadvantages in allowing poultry free range. Many importing countries will not accept animals unless they have passed a tuberculin test with mammalian tuberculin only. As there is a risk that an animal infected with the avian type of tuberculosis may react to the test and be rejected, owners of cattle which may have to pass a test in which mammalian tuberculin only is used would be well advised to keep their cattle and poultry apart.

Ewes and Views.—There are some 30 or 40 breeds of sheep in Great Britain—rather a lot for a smaller country. But it is a first principle of livestock well-being and improvement that animals must be suited to climate and environment, and Britain has many varieties. Originally, all sheep depended on grass and other wild herbage. Lambs were born in spring when grass came. Now they arrive any time from late autumn to May; one breed, at least—Dorset Horn—lambs in September and sometimes again the following spring or summer. That requires good land and abundant food. In the dry Dorset Horn country, farms have most keep during winter when roots are available. On the hills, sheep rarely average as many as one lamb per ewe per annum, but when the same ewes are brought down to the lowlands twins are quite common.

Mountain breeds outnumber all others; they are practically the only means of utilising such land agriculturally. They are, moreover, the source of the lowland grass flocks and many of the store lambs for fattening on arable land. Many of the "flying" flocks are half-breds—the Cheviot ewe crossed with the Border Leicester ram—but the Mule or Grey Face, or other breed, may be easier to buy. The half-bred is very prolific and a generous milker. Milk is essential for the production of fat lamb, so the mother is again crossed with a ram of a Down or arable sheep breed.

Arable or folding breeds are bred for mutton and early maturity. For joints of super-excellence a Southdown ram may be used; for greater weight-for-age, a Hampshire, Suffolk or Oxford ram. Thus the whole sheep industry is inter-dependent. With the expansion of the ley system many farmers are favouring a type combining adaptability to free range and folding: free range on leys, folding on winter green crops. For light chalk lands, folding is almost indispensable—it manures the land and imparts the requisite "crumb structure" and consolidation. Implements effect little consolidation on loose soil, particularly on sloping uplands, and the summer treading effect of sheep on a ley is only superficial.

Down breeds generally adapt themselves quickly to range feeding, but are not, as a rule, so prolific or such good mothers as grass sheep. Ewe lambs from the Suffolk × half-bred cross make an excellent flock for a combination of grass and arable.

Perhaps our two most prolific and best milking breeds are Border Leicesters and Dorset Horns. There is reason to believe that, for good lowland conditions, the Border Leicester ram on the Dorset Horn ewe would make a superb ewe, and without horns.

Sheep are naturally hardy, and under good management not seriously troubled with disease. But parasites abound and may take a heavy toll. Control measures, however, are now better understood and losses no longer taken for granted.

* * * * *

LEGAL NOTES

Imprisoned for Cruelty to a Dog.—The Faringdon (Berks.) magistrates sentenced to two months imprisonment a Kingston Lisle man, Ronald J. Curtis, who pleaded "guilty" to causing unnecessary suffering to a dog.

Prosecuting, Mr. R. J. Parker, solicitor, said that an R.S.P.C.A. inspector called on November 30th at the cottage occupied by

Curtis and his wife. At the rear was a kennel which was inadequate for the size of the dog. The dog was lying on a piece of sack and was unable to rise. A veterinary surgeon took photographs of the animal which were shown to the court.

Inspector Checksfield, of the R.S.P.C.A., at Newbury, said when he saw the dog it was very weak and emaciated. The tail was bare. It was chained and the chain gave the dog a movement of 20 inches.

Mr. J. W. Warde, veterinary surgeon, of Newbury, said that the dog was brought to him in a very serious condition. It was suffering from chronic emaciation.

Curtis told the court that the previous owner of the cottage had asked him to look after the animal. He was unaware that the dog was in such a condition. It had been fed every day; earlier on he had spent 10s. a week on doing so, but then fed it on scraps. He realised that the dog was not well and intended to consult a veterinary surgeon.

Passing sentence, Sir Leo Page said: "You showed no mercy and never again in your life will you be able to look after a dog."

* * * * *

ROYAL VETERINARY COLLEGE STUDENTS UNION SOCIETY ANNUAL BALL

The 157th Annual Ball of the Royal Veterinary College Students Union Society was held at Grosvenor House, Park Lane, on January 21st.

In all, some 300 persons attended including over 100 members of the profession. Amongst those present were the Principal and Mrs. Buxton, Professor and Mrs. G. H. Wooldridge, Dr. and Mrs. W. R. Wooldridge, and Mr. and Mrs. Guy Anderson.

The organisers, through the medium of the *Record*, would like to thank all those who supported the ball and helped to make it the conspicuous success that it was. They would especially like to thank those members of the profession who travelled from as far afield as Yorkshire, Wales, and Devon.

CORRESPONDENCE

The views expressed in letters addressed to the Editor represent the personal opinions of the writer only and their publication does not imply endorsement by the N.V.M.A.

Correspondents are requested to write as briefly as possible.

DISPOSAL OF ANIMAL CARCASES

Sir,—Not only do I wish to express my agreement with the recent suggestions for a national policy for the disposal of dead carcases, but also to raise another question with some considerable bearing on this issue.

On several occasions when a client has resorted to the emergency slaughter of a "hopeless case," the carcase has been condemned, and the client has only received approximately 30s. for the hide. I understand that such condemned carcases are sent from the Ministry of Food slaughterhouses for the manufacture of fertilisers and blood and bone meal. These products are worth something, even if not as much as 8d. per lb. for dog meat as claimed by knackers. Surely the Ministry of Food should pay the farmer for this material.

Even though one should try to save as much as possible for human consumption, under these present arrangements one has to admit to the client that the knacker may pay him better.

Yours faithfully,

38, High Street, H. Norman Bateman.
Wickham Market,
Suffolk.
January 16th, 1949.

* * * * *

THE INCIDENCE OF TUBERCULOSIS IN THE HORSE

Sir,—The correspondence on the above subject, initiated by Mr. H. E. Bywater, appearing in recent issues of *The Veterinary Record*, tends to give a false impression of the actual incidence of tuberculosis in the horse. During 24 years in practice I have seen several cases of clinical tuberculosis in equines all of which have been confirmed by *post-mortem* examination. It has been my experience that clinical tuberculosis in the horse is almost invariably accompanied by emaciation, hence the carcase finds its way to the knacker's yard rather than the slaughterhouse.

Yours faithfully,

Bourne, Philip E. Emson.
Lincolnshire.
January 24th, 1949.

CANINE EUTHANASIA

Sir,—A few days ago, I had the pleasure of meeting the Professor of Medicine of Leyden University, Holland. The conversation turned on euthanasia and he asked me about the methods used in this country. He then asked me if we ever destroyed dogs by an intravenous injection of petrol. I told him that I had never heard of this method but that I would enquire if it has been used in this country at all.

The professor informed me that while he was in a concentration camp in Holland during the war, it was one of the methods commonly used by the Germans for the swift disposal of unwanted prisoners. He had seen it done on many occasions and assured me that it appeared to be both painless and instantaneous. He understood that the prison doctors had been shown this method of destruction by veterinarians.

I should like to know if any of my colleagues has destroyed a dog by this method and if so, his views on the subject.

Yours truly,

8, Abingdon Villas, L. R. Geffen.
Kensington, W.8.
January 15th, 1949.

* * * * *

AN ETHICAL PLEA

Sir,—At the annual meeting of the Royal Counties Veterinary Medical Association I notice a remark of the President, Mr. S. J. Edwards, with which I, for one, do not agree. He said: "There is no sanctity of animal life." My dictionary gives as one of the meanings of the word sacred: "Entitled to consideration, respect or reverence; not to be thoughtlessly treated." In these days of doubt and disillusionment, the phenomenon of life, even in its lowest forms, seems to me to be one of the few sacred things left us.

A writer expresses this view better than I can: "Man with all his cleverness, with all his centuries of learning, has never yet been able to create life. He has been able to change matter and to produce new forms of it, but he has never been able to fire it with the vital spark. To know this should make us reverent—and humble. Life is something wonderful, a mystery beyond our understanding. We should therefore regard it as sacred. Even the meanest insect that crawls has something we cannot give or restore. Let us then resolve never to take life needlessly and to refrain from causing suffering."

Yours faithfully,

2, Alexandra Terrace, R. Glave Saunders.
Exmouth.
January 16th, 1949.

* * * * *

Further letters have been received on this subject. Since there is a tendency to quote from a document which has not appeared in our open columns, in future such letters will be published in the Supplement.

The Officers will welcome contributions on this subject, either for publication in the Supplement or for reference to the appropriate committee, to which all these letters, published or unpublished, will be submitted for consideration.

Trivia

Overheard

Conversation which took place just after I had seen a bunch of ailing calves:

Cowman—"What does the vet. think is the matter with them?"

Owner—"Oh, he thinks it's a shortage of vitamin A."

Cowman—"There, I said so, I knew it, I told you they wasn't 'aving enough 'ay."

. . . . . .

"Failed Mightily in Hitting the Vein"

May 16th, 1663:

With Mr. Pierce, the surgeon, to see an experiment of killing a dog, by letting opium into his hind leg. He and Dr. Clarke did fail mightily in hitting the vein, and in effect did not do the business after many trials; but with the little they got in the dog did presently fall asleep, and so lay till we cut him up: and a little dog also, which they put it down his throat—he also staggered first, and then fell asleep, and so continued. Whether he recovered or no, after I was gone, I know not.—*Diary of Samuel Pepys.*